



OIEP

RAW SEQUENCE LISTING

DATE: 06/11/2002

PATENT APPLICATION: US/10/092,934

TIME: 14:22:07

Input Set : A:\18792199.app

Output Set: N:\CRF3\06112002\J092934.raw

ENTERED

3 <110> APPLICANT: AVERBACK, PAUL
 5 <120> TITLE OF INVENTION: METHODS OF USING NEURAL THREAD PROTEINS TO TREAT TUMORS
 6 AND CONDITIONS REQUIRING THE REMOVAL OR DESTRUCTION OF
 7 CELLS
 9 <130> FILE REFERENCE: 018792-0199
 11 <140> CURRENT APPLICATION NUMBER: 10/092,934
 C--> 12 <141> CURRENT FILING DATE: 2002-06-05
 14 <150> PRIOR APPLICATION NUMBER: 60/273,957
 15 <151> PRIOR FILING DATE: 2001-03-08
 17 <160> NUMBER OF SEQ ID NOS: 11
 19 <170> SOFTWARE: PatentIn Ver. 2.1
 21 <210> SEQ ID NO: 1
 22 <211> LENGTH: 1442
 23 <212> TYPE: DNA
 24 <213> ORGANISM: Homo sapiens
 26 <220> FEATURE:
 27 <221> NAME/KEY: CDS
 28 <222> LOCATION: (15)..(1139)
 30 <400> SEQUENCE: 1
 31 tttttttttt tgag atg gag ttt tcg ctc ttg ttg ccc agg ctg gag tgc 50
 32 Met Glu Phe Ser Leu Leu Leu Pro Arg Leu Glu Cys
 33 1 5 10
 35 aat ggc gca atc tca gct cac cgc aac ctc cgc ctc ccg ggt tca agc 98
 36 Asn Gly Ala Ile Ser Ala His Arg Asn Leu Arg Leu Pro Gly Ser Ser
 37 15 20 25
 39 gat tct cct gcc tca gcc tcc cca gta gct ggg att aca ggc atg tgc 146
 40 Asp Ser Pro Ala Ser Ala Ser Pro Val Ala Gly Ile Thr Gly Met Cys
 41 30 35 40
 43 acc cac gct cgg cta att ttg tat ttt ttt tta gta gag atg gag ttt 194
 44 Thr His Ala Arg Leu Ile Leu Tyr Phe Phe Leu Val Glu Met Glu Phe
 45 45 50 55 60
 47 ctc cat gtt ggt cag gct ggt ctc gaa ctc ccg acc tca gat gat ccc 242
 48 Leu His Val Gly Gln Ala Gly Leu Glu Leu Pro Thr Ser Asp Asp Pro
 49 65 70 75
 51 tcc gtc tcg gcc tcc caa agt gct aga tac agg act ggc cac cat gcc 290
 52 Ser Val Ser Ala Ser Gln Ser Ala Arg Tyr Arg Thr Gly His His Ala
 53 80 85 90
 55 cgg ctc tgc ctg gct aat ttt tgt ggt aga aac agg gtt tca ctg atg 338
 56 Arg Leu Cys Leu Ala Asn Phe Cys Gly Arg Asn Arg Val Ser Leu Met
 57 95 100 105
 59 tgc cca agc tgg tct cct gag ctc aag cag tcc acc tgc ctc agc ctc 386
 60 Cys Pro Ser Trp Ser Pro Glu Leu Lys Gln Ser Thr Cys Leu Ser Leu
 61 110 115 120

RAW SEQUENCE LISTING

DATE: 06/11/2002

PATENT APPLICATION: US/10/092,934

TIME: 14:22:07

Input Set : A:\18792199.app

Output Set: N:\CRF3\06112002\J092934.raw

```

63 cca aag tgc tgg gat tac agg cgt gca gcc gtg cct ggc ctt ttt att 434
64 Pro Lys Cys Trp Asp Tyr Arg Arg Ala Ala Val Pro Gly Leu Phe Ile
65 125 130 135 140
67 tta ttt ttt tta aga cac agg tgt ccc act ctt acc cag gat gaa gtg 482
68 Leu Phe Phe Leu Arg His Arg Cys Pro Thr Leu Thr Gln Asp Glu Val
69 145 150 155
71 cag tgg tgt gat cac agc tca ctg cag cct tca act cct gag atc aag 530
72 Gln Trp Cys Asp His Ser Ser Leu Gln Pro Ser Thr Pro Glu Ile Lys
73 160 165 170
75 cat cct cct gcc tca gcc tcc caa gta gct ggg acc aaa gac atg cac 578
76 His Pro Pro Ala Ser Ala Ser Gln Val Ala Gly Thr Lys Asp Met His
77 175 180 185
79 cac tac acc tgg cta att ttt att ttt att ttt aat ttt ttg aga cag 626
80 His Tyr Thr Trp Leu Ile Phe Ile Phe Ile Phe Asn Phe Leu Arg Gln
81 190 195 200
83 agt ctc aac tct gtc acc cag gct gga gtg cag tgg cgc aat ctt ggc 674
84 Ser Leu Asn Ser Val Thr Gln Ala Gly Val Gln Trp Arg Asn Leu Gly
85 205 210 215 220
87 tca ctg caa cct ctg cct ccc ggg ttc aag tta ttc tcc tgc ccc agc 722
88 Ser Leu Gln Pro Leu Pro Pro Gly Phe Lys Leu Phe Ser Cys Pro Ser
89 225 230 235
91 ctc ctg agt agc tgg gac tac agg cgc cca cca cgc cta gct aat ttt 770
92 Leu Leu Ser Ser Trp Asp Tyr Arg Arg Pro Pro Arg Leu Ala Asn Phe
93 240 245 250
95 ttt gta ttt tta gta gag atg ggg ttc acc atg ttc gcc agg ttg atc 818
96 Phe Val Phe Leu Val Glu Met Gly Phe Thr Met Phe Ala Arg Leu Ile
97 255 260 265
99 ttg atc tct gga cct tgt gat ctg cct gcc tgc gcc tcc caa agt gct 866
100 Leu Ile Ser Gly Pro Cys Asp Leu Pro Ala Ser Ala Ser Gln Ser Ala
101 270 275 280
103 ggg att aca ggc gtg agc cac cac gcc cgg ctt att ttt aat ttt tgt 914
104 Gly Ile Thr Gly Val Ser His His Ala Arg Leu Ile Phe Asn Phe Cys
105 285 290 295 300
107 ttg ttt gaa atg gaa tct cac tct gtt acc cag gct gga gtg caa tgg 962
108 Leu Phe Glu Met Glu Ser His Ser Val Thr Gln Ala Gly Val Gln Trp
109 305 310 315
111 cca aat ctc ggc tca ctg caa cct ctg cct ccc ggg ctc aag cga ttc 1010
112 Pro Asn Leu Gly Ser Leu Gln Pro Leu Pro Pro Gly Leu Lys Arg Phe
113 320 325 330
115 tcc tgt ctc agc ctc cca agc agc tgg gat tac ggg cac ctg cca cca 1058
116 Ser Cys Leu Ser Leu Pro Ser Ser Trp Asp Tyr Gly His Leu Pro Pro
117 335 340 345
119 cac ccc gct aat ttt tgt att ttc att aga ggc ggg gtt tca cca tat 1106
120 His Pro Ala Asn Phe Cys Ile Phe Ile Arg Gly Gly Val Ser Pro Tyr
121 350 355 360
123 ttg tca ggc tgg tct caa act cct gac ctc agg tgacccacct gcctcagcct 1159
124 Leu Ser Gly Trp Ser Gln Thr Pro Asp Leu Arg
125 365 370 375
127 tccaaagtgc tgggattaca ggcgtgagcc acctcaccca gccggctaatt ttagataaaaa 1219

```

RAW SEQUENCE LISTING

DATE: 06/11/2002

PATENT APPLICATION: US/10/092,934

TIME: 14:22:07

Input Set : A:\18792199.app

Output Set: N:\CRF3\06112002\J092934.raw

```

129 aaatatgtag caatggggggg tcttgctatg ttgccaggc tgggtctcaa cttctggctt 1279
131 catgcaatcc ttccaaatga gccacaacac ccagccagtc acatttttta aacagttaca 1339
133 tctttatttt agtatactag aaagtaatac aataaacatg tcaaacctgc aaattcagta 1399
135 gtaacagagt tcttttataa cttttaaaca aagctttaga gca 1442
139 <210> SEQ ID NO: 2
140 <211> LENGTH: 122
141 <212> TYPE: PRT
142 <213> ORGANISM: Unknown Organism
144 <220> FEATURE:
145 <223> OTHER INFORMATION: Description of Unknown Organism: Neural thread
146 protein
148 <400> SEQUENCE: 2
149 Met Met Val Cys Trp Asn Arg Phe Gly Lys Trp Val Tyr Phe Ile Ser
150 1 5 10 15
152 Ala Ile Phe Asn Phe Gly Pro Arg Tyr Leu Tyr His Gly Val Pro Phe
153 20 25 30
155 Tyr Phe Leu Ile Leu Val Arg Ile Ile Ser Phe Leu Ile Gly Asp Met
156 35 40 45
158 Glu Asp Val Leu Leu Asn Cys Thr Leu Leu Lys Arg Ser Ser Arg Phe
159 50 55 60
161 Arg Phe Trp Gly Ala Leu Val Cys Ser Met Asp Ser Cys Arg Phe Ser
162 65 70 75 80
164 Arg Val Ala Val Thr Tyr Arg Phe Ile Thr Leu Leu Asn Ile Pro Ser
165 85 90 95
167 Pro Ala Val Trp Met Ala Arg Asn Thr Ile Asp Gln Gln Val Leu Ser
168 100 105 110
170 Arg Ile Lys Leu Glu Ile Lys Arg Cys Leu
171 115 120
174 <210> SEQ ID NO: 3
175 <211> LENGTH: 112
176 <212> TYPE: PRT
177 <213> ORGANISM: Homo sapiens
179 <400> SEQUENCE: 3
180 Met Ala Gln Ser Arg Leu Thr Ala Thr Ser Ala Ser Arg Val Gln Ala
181 1 5 10 15
183 Ile Leu Leu Ser Gln Pro Pro Lys Gln Leu Gly Leu Arg Ala Pro Ala
184 20 25 30
186 Asn Thr Pro Leu Ile Phe Val Phe Ser Leu Glu Ala Gly Phe His His
187 35 40 45
189 Ile Cys Gln Ala Gly Leu Lys Leu Leu Thr Ser Gly Asp Pro Pro Ala
190 50 55 60
192 Ser Ala Phe Gln Ser Ala Gly Ile Thr Gly Val Ser His Leu Thr Gln
193 65 70 75 80
195 Pro Ala Asn Leu Asp Lys Lys Ile Cys Ser Asn Gly Gly Ser Cys Tyr
196 85 90 95
198 Val Ala Gln Ala Gly Leu Lys Leu Leu Ala Ser Cys Asn Pro Ser Lys
199 100 105 110
202 <210> SEQ ID NO: 4
203 <211> LENGTH: 106

```

RAW SEQUENCE LISTING

PATENT APPLICATION: US/10/092,934

DATE: 06/11/2002

TIME: 14:22:07

Input Set : A:\18792199.app

Output Set: N:\CRF3\06112002\J092934.raw

```

204 <212> TYPE: PRT
205 <213> ORGANISM: Homo sapiens
207 <400> SEQUENCE: 4
208 Met Trp Thr Leu Lys Ser Ser Leu Val Leu Leu Leu Cys Leu Thr Cys
209   1           5           10           15
211 Ser Tyr Ala Phe Met Phe Ser Ser Leu Arg Gln Lys Thr Ser Glu Pro
212           20           25           30
214 Gln Gly Lys Val Pro Cys Gly Glu His Phe Arg Ile Arg Gln Asn Leu
215           35           40           45
217 Pro Glu His Thr Gln Gly Trp Leu Gly Ser Lys Trp Leu Trp Leu Leu
218           50           55           60
220 Phe Ala Val Val Pro Phe Val Ile Leu Lys Cys Gln Arg Asp Ser Glu
221   65           70           75           80
223 Lys Asn Lys Val Arg Met Ala Pro Phe Phe Leu His His Ile Asp Ser
224           85           90           95
226 Ile Ser Gly Val Ser Gly Lys Arg Met Phe
227           100          105
230 <210> SEQ ID NO: 5
231 <211> LENGTH: 106
232 <212> TYPE: PRT
233 <213> ORGANISM: Homo sapiens
235 <400> SEQUENCE: 5
236 Met Phe Phe Val Leu Tyr Arg Phe Cys Phe Cys Phe Phe Glu Thr Glu
237   1           5           10           15
239 Ser His Ser Leu Thr Gln Ala Gly Val Gln Trp Cys Glu Leu Gly Ser
240           20           25           30
242 Pro Gln Pro Leu Pro Ser Gly Phe Lys Arg Phe Ser Cys Leu Ser Leu
243           35           40           45
245 Leu Ser Ser Trp Asp Tyr Ser His Glu Pro Pro His Pro Val Ile Cys
246           50           55           60
248 Ser Phe Leu Met Glu Lys Cys Leu Ile Leu Tyr Lys Pro Asn Gly Asp
249   65           70           75           80
251 Thr Ile Gly Pro Ile Leu Val Gln Gln Gly Lys Arg Gln Lys Leu Tyr
252           85           90           95
254 Ile Ser Ala Asp Leu Val His Leu Ile Ala
255           100          105
258 <210> SEQ ID NO: 6
259 <211> LENGTH: 98
260 <212> TYPE: PRT
261 <213> ORGANISM: Unknown Organism
263 <220> FEATURE:
264 <223> OTHER INFORMATION: Description of Unknown Organism: Neural thread
265   protein
267 <400> SEQUENCE: 6
268 Glu Ala Tyr Tyr Thr Met Leu His Leu Pro Thr Thr Asn Arg Pro Lys
269   1           5           10           15
271 Ile Ala His Cys Ile Leu Phe Asn Gln Pro His Ser Pro Arg Ser Asn
272           20           25           30
274 Ser His Ser His Pro Asn Pro Leu Lys Leu His Arg Arg Ser His Ser

```

RAW SEQUENCE LISTING

DATE: 06/11/2002

PATENT APPLICATION: US/10/092,934

TIME: 14:22:07

Input Set : A:\18792199.app

Output Set: N:\CRF3\06112002\J092934.raw

```

275          35          40          45
277 His Asn Arg Pro Arg Ala Tyr Ile Leu Ile Thr Ile Leu Pro Ser Lys
278          50          55          60
280 Leu Lys Leu Arg Thr His Ser Gln Ser His His Asn Pro Leu Ser Arg
281 65          70          75          80
283 Thr Ser Asn Ser Thr Pro Thr Asn Ser Phe Leu Met Thr Ser Ser Lys
284          85          90          95
286 Pro Arg
290 <210> SEQ ID NO: 7
291 <211> LENGTH: 75
292 <212> TYPE: PRT
293 <213> ORGANISM: Unknown Organism
295 <220> FEATURE:
296 <223> OTHER INFORMATION: Description of Unknown Organism: Neural thread
297     protein
299 <400> SEQUENCE: 7
300 Ser Ser Ser Leu Gly Leu Pro Lys Cys Trp Asp Tyr Arg His Glu Leu
301 1          5          10          15
303 Leu Ser Leu Ala Leu Met Ile Asn Phe Arg Val Met Ala Cys Thr Phe
304          20          25          30
306 Lys Gln His Ile Glu Leu Arg Gln Lys Ile Ser Ile Val Pro Arg Lys
307          35          40          45
309 Leu Cys Cys Met Gly Pro Val Cys Pro Val Lys Ile Ala Leu Leu Thr
310          50          55          60
312 Ile Asn Gly His Cys Thr Trp Leu Pro Ala Ser
313 65          70          75
316 <210> SEQ ID NO: 8
317 <211> LENGTH: 68
318 <212> TYPE: PRT
319 <213> ORGANISM: Unknown Organism
321 <220> FEATURE:
322 <223> OTHER INFORMATION: Description of Unknown Organism: Neural thread
323     protein
325 <400> SEQUENCE: 8
326 Met Phe Val Phe Cys Leu Ile Leu Asn Arg Glu Lys Ile Lys Gly Gly
327 1          5          10          15
329 Asn Ser Ser Phe Phe Leu Leu Ser Phe Phe Ser Phe Gln Asn Cys
330          20          25          30
332 Cys Gln Cys Phe Gln Cys Arg Thr Thr Glu Gly Tyr Ala Val Glu Cys
333          35          40          45
335 Phe Tyr Cys Leu Val Asp Lys Ala Ala Phe Glu Cys Trp Trp Phe Tyr
336          50          55          60
338 Ser Phe Asp Thr
339 65
342 <210> SEQ ID NO: 9
343 <211> LENGTH: 61
344 <212> TYPE: PRT
345 <213> ORGANISM: Homo sapiens
347 <400> SEQUENCE: 9

```

VERIFICATION SUMMARY

PATENT APPLICATION: US/10/092,934

DATE: 06/11/2002

TIME: 14:22:08

Input Set : A:\18792199.app

Output Set: N:\CRF3\06112002\J092934.raw

L:12 M:271 C: Current Filing Date differs, Replaced Current Filing Date